

# 10.Artificial Research by Deduction



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[Probabilidad Imposible: Artificial Research by Deduction](#)

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## 10. Artificial Research by Deduction

A [deduction](#) is any conclusion obtained by syllogism, the [logic process](#) which starts from the major premise and the minor premise is inferred as a conclusion C. So, given a major premise, A, and a minor premise, B, it is possible to reach the conclusion C.

Actually, about [the methodology](#) I use, [Impossible Probability](#) uses what I call the '[Syllogism of the Trend](#)'. Given three factors—A, B, and C—if [A tends to B](#) and B tends to C, then it logically follows that A tends to C.

The only thing that I did in order to reach my [statistical](#) discoveries that I set down in my book: "[Introducción a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística](#)", is the observation about how the trends work in statistics and [probability](#).

The statistical and probability theory that I developed was, in part, explained and extended in this blog of Impossible Probability. Actually, many ideas for the design of [Artificial Intelligence, Global or Specific](#), for [Artificial Research by Deduction](#), as well as in Artificial Research by Application, are ideas previously developed in that book as well as in many posts on this blog, or even in early phases of Impossible Probability.

My very first writings on artificial intuition and artificial learning date back to October 2002 and the winter of 2003. During the Christmas of 2009 I developed the idea of an automated or automatic economy, whose most important ideas I wrote in the final chapter of "[Introducción a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística](#)", being published for the first time in December of 2011. Many copies of this very first book were sent to many universities around the world, making it actually available to the public.

Having a clear definition of the concept of deduction is time to define what is an Artificial Research by Deduction, that would be one type of

research made by Artificial Intelligence, Global or Specific, in which the [Artificial Intelligence](#) would be able to make a deduction through statistics and probabilistic methods, so in reality, it would be an artificial deduction made completely and only by an Artificial Intelligence, Global or Specific.

There are at least two remarkable differences very important between Artificial Research by Application and Artificial Research by Deduction.

The first one, in Artificial Research by Application, all the steps in the [research process](#) are automatically programmed within the application, so much more than deduction, in Artificial Research by Application any Specific Artificial Intelligence follows the steps in which the application has been programmed, is able to make scientific discoveries even at a very high level. But in Artificial Research by Deduction, any Artificial Intelligence, Global or Specific, starting from the previous database, in this case, a matrix, a [global matrix](#) or [specific matrix](#) depending on the nature of its Artificial Intelligence, through statistical and probabilistic methods must be able to reach [empirical hypothesis](#), that after [rational contrastation](#), if accepted, must be suitable for the creation of virtual models, [global virtual models](#) or [specific models](#) depending on the nature of its Artificial Intelligence.

The second difference, that Artificial Research by Application, not having finished yet the integration process, is only able to merge into a [unified database of categories](#). But from the outset, Artificial Research by Deduction is suitable for Specific Artificial Intelligence or Global Artificial Intelligence.

From the very beginning in which a global database works, on this very first global database, the Global Artificial Intelligence must be able to use Artificial Research by Deduction in order to make empirical hypotheses based on statistic and probabilistic methods, that, after rational contrastation, if accepted, must be integrated into the very first global virtual models. As well as Artificial Research by Deduction is suitable for any Specific Artificial Intelligence in any [synthetic science](#), synthetic academic field, or activity, where, through statistical and probabilistic methods, the formation of empirical hypotheses, that after rational contrastation, if accepted, is suitable for specific virtual models.

And one of the most important aspects in common between Artificial Research by Deduction and Artificial Research by Application is the fact that both of them are only valid for research in synthetic studies, either synthetic sciences, synthetic academic fields, or activity, by any Artificial Intelligence, Global or Specific, or synthetic studies in multidisciplinary or interdisciplinary by the [Global Artificial Intelligence](#).

Both of them, Artificial Research by Application or by Deduction, are only suitable for synthetic studies, not for [analytical sciences](#), including analytical sciences [maths](#) and logic.

The first sciences in which the replication of the scientific research process is easier to replicate in the current stage of development in Artificial Intelligence are the synthetic sciences. And for that purpose, the methods that I am developing on this blog, Artificial Research by Application and Artificial Research by Deduction, are the very first ones. But I am completely and absolutely sure that in the coming years, are going to be developed many more, and when the replication of scientific research in synthetic sciences is completed, the replication of scientific research in analytical sciences, especially maths and logic, will be possible.

Once it has defined the concept of deduction, and Artificial Research by Deduction, and has explained the main differences and similarities between Artificial Research by Deduction and Artificial Research by Application, the next step is to see how Artificial Research by Deduction works, and the way in which it works following the three general stages of any other Artificial Intelligence, Specific or Global, but applied to the deduction process, what in Artificial Intelligence is in reality an artificial deduction, applicable to the Global Artificial Intelligence or any Specific Artificial Intelligence, but always only for synthetic studies, either synthetic sciences or synthetic academic fields, or multidisciplinary or interdisciplinary synthetic studies.

The three general stages in which any Artificial Intelligence, Global or Specific, is developed, as usual following the last developments in Impossible Probability, are application, replication, and auto-replication. But, in this post and the next ones, applied to Artificial Research by Deduction.

In Artificial Research by Deduction, the three stages are going to be developed in this way: the database in the application is a matrix, the replications are replications about how through statistics and probability is possible to elaborate empirical hypothesis in order to contrast them and if accepted the creation of virtual models, and finally the auto-replication in order to auto-improve and auto-enhance itself the global or Specific Artificial Intelligence.

The first in stage, the database within the application, in Artificial Research by Deduction, is a database with the shape of a matrix, including any factor to study, defining every factor in quantitative terms, factors that later on in the next stage, by replication processes, will be measured by robotic devices.

In this very first stage, when the database is designed within the application, this design is only a definition of every factor, included in the matrix, in quantitative terms, and nothing else, only definitions. In the same way that in Artificial Research by Application, the database within the application is only a list of categories, defining every category in quantitative terms, in Artificial Research by Deduction, the database in the application is a list of factors, with the only difference that these factors within the database should be organized like a matrix.

The reason why the organization of factors, defined in quantitative terms, in the database in Artificial Research by Deduction should have the shape of a matrix, is because later on in the next stage, the replication, by replication processes of [measurement](#) using robotic devices, what the robotic replications are going to do is the permanent measurement of every single factor permanently, that later on the Artificial Intelligence, Specific or Global, will include in the matrix, in order to have a permanent record of measurements for every factor, and over the records of all factors the identification of [correlations](#) and probabilities at any time among the factors included in the matrix.

The matrix must work 24 hours a day, 7 days a week, without time off, permanently, recording all the time, even every minute, or even every second, measurements from any factor.

In this first step, the construction of the database as a matrix is remarkable. This idea: the matrix consists only of a list of factors defined in quantitative terms.

The only thing that the designer would do in this first stage for the creation of an application for Artificial Research by Deduction is the design of a matrix, including for each factor a description in quantitative terms.

**It is very important to have a very clear idea about the nature of this first stage in Artificial Research by Deduction, because when I developed the Artificial Designer of Intelligence, the only thing that the Artificial Designer of Intelligence would do as a first stage is only the construction of a matrix including all the necessities factors, having previously a quantitative definition of every factor.**

**The Artificial Designer of Intelligence can get the list of the factors because a scientist or scientific team has supplied a list of factors or the list of factors has been supplied by the Global Artificial Intelligence, or supplied by a Specific Artificial Intelligence that needs further investigations over a specific list of factors, list of factors available as well, or exchangeable as well through the virtual store, or through inter-net, or an intra-net or any other possible future virtual-net.**

**In the same way, if an Artificial Designer of Intelligence has to create a Specific Artificial Intelligence for Artificial Research by Application, as a first stage, it has only to design a database including all the necessary categories.**

In conclusion, independently if the Artificial Intelligence, Global or Specific, is made by human scientists or by the Artificial Designer of Intelligence, the first stage in the creation of any Artificial Intelligence is necessary for the design of a database. This database in Artificial Research by Application consists of a list of categories defined in quantitative terms, and the database in Artificial Research by Deduction consists of a matrix made of a list of factors defined in quantitative terms.



In Specific Artificial Intelligence for Artificial Research by Deduction, the list of factors defined in quantitative terms are factors from a synthetic science, synthetic academic field, or activity. In [Global Artificial Intelligence for Artificial Research by Deduction](#), the list of factors defined in quantitative terms could be, either a gigantic matrix where are included absolutely and without exception, all the factors in the synthetic world, including all information without restriction from the whole Earth and all possible information that we can get from the entire universe, or any sub-matrix within the Global Artificial Intelligence for Artificial Research by Deduction where are set up a specific group of factors for multidisciplinary or interdisciplinary studies.

An example of a multidisciplinary or interdisciplinary study made by Artificial Research by Deduction is the creation of a specific matrix with a set of factors from different synthetic studies, synthetic academic fields, or activities, where the goal is to find [stochastic relations](#) among them.

In that case, this kind of research is made either by a Specific Artificial Intelligence for Artificial Research by Deduction specialised in only interdisciplinary or multidisciplinary research, as it were a synthetic academic field of investigation, or made by the Global Artificial Intelligence, being this specific matrix a sub-matrix within the global matrix.

In any case, the definition of the first stage in the creation of any Artificial Intelligence, Specific or Global, is really important, because having an exact definition from the outset, the design of the following stages is really easy.

In Artificial Research by Deduction, having a clear definition in quantitative terms of every factor, and organizing the list of factors in the shape of a matrix, is the first stage of this process, then the second stage of this process is the replication of every single scientific skill necessary to make and contrast hypothesis for further decisions.

The second stage, the stage of replication, in Artificial Research by Deduction, consists of the permanent measurement of every factor, filling

in the matrix the flow of the measurements, the identification of any possible stochastic relation among factors using statistic and probabilistic methods, the empirical contrastation of every possible stochastic relation as an empirical hypothesis, taken as a sample the flow of measurements of every factor in the matrix involved in every possible stochastic relation, and after critical contrast the elaboration of virtual models only from those empirical hypothesis accepted as rational hypothesis.

In this second stage, the replication stage, what is really important is what statistical and probabilistic methods are used for the identification of possible stochastic relations. After the identification of possible stochastic relations, depending on their stochastic nature, correlational, probabilistic, or any other, the critical contrast is not really different to the critical contrast in Artificial Research by Application.

In fact, in this second stage of replication, the main difference in the first steps on this stage between Artificial Research by Application and Artificial Research by Deduction is the fact that in Artificial Research by Application in the first steps of the second stage of replication, the only thing that the Specific Artificial Intelligence does is the comparison of those measurements taken from real objects and the quantitative descriptions of every category in a database. While in Artificial Research by Deduction, in the first step on the second stage of replication, Artificial Research is the identification of possible stochastic relations among those factors included in the database as a matrix.

In the middle steps on the second stage of replication in Artificial Research by Application, after the identification of those categories with a high [similarity](#) between their quantitative descriptions and the measurements taken from a real object, those categories with a high level of similarity are going to be considered as an empirical hypothesis for the critical contrast. While in Artificial Research by Deduction, in the middle steps on the second stage of replication, after the identification of possible stochastic relations, those possible stochastic relations are considered as empirical hypotheses for the critical contrast.

Finally, in the final steps on the second stage of replication in Artificial Research by Application, the empirical hypothesis is [rationally criticized](#) taken samples from [the reality](#), in order to make a



rational decision, and if accepted, the creation of a virtual model of the real object through the category or categories selected as a rational hypothesis, or if refused, the consideration of this sample from this new real object as a new category to be integrated into the database, take the measurements from the sample as a quantitative description of this new category and proceeding to the creation of a virtual model of this new category.

Finally, in the final steps on the second stage of replication in Artificial Research by Deduction, the empirical hypothesis is rationally criticized taken samples from the flow in the matrix of every factor involved in every possible stochastic relation, taken as an empirical hypothesis, so for every hypothesis accepted as a rational hypothesis, then the formation of a single virtual model, or take absolutely all the hypothesis accepted as rational hypotheses by a Global Artificial Intelligence, then the construction of a global virtual model.

In future posts, I will develop as well possible ways of [collaboration between Artificial Research by Application and Artificial Research by Deduction](#), one of them is the possibility that, at any time that an Artificial Research by Application finds a new real object, over the quantitative description of this new real object, the use of Artificial Research by Deduction in longitudinal studies about the behaviour of every factor included in the quantitative description of this new real object, taken as a quantitative description of every factor for the investigation through the Artificial Research by Deduction, the quantitative description of every factor of this new real object included in the definition of its category.

So, in general, taking any database from any Specific Artificial Intelligence for Artificial Research by Application, are possible longitudinal studies of every factor included in the quantitative description of any category of any real object in any database in any Specific Artificial Intelligence for Artificial Research by Application.

Therefore, it is a real possibility that, by Global Artificial Intelligence, it is possible to conduct permanent longitudinal studies in a global matrix, including absolutely every category, object, and factor, from the synthetic world, for the identification of any possible stochastic relation,

correlational o probabilistic, that, after rational contrast, if accepted as a rational hypothesis, will form a global virtual model.

Ending with the second stage of replication in Artificial Research by Deduction is necessary to say that the stochastic methods that I would propose for the identification of stochastic relations among the factors in any matrix, global or specific, are the same as I have developed in other phases of Impossible Probability.

Some of the most important advancements that I have made in statistics and probability were made in the early phases of Impossible Probability, particularly from October 2002 to 2004 (especially those ones about geometrical correlations in autumn of 2003), later on between 2009 and 2011, ending with the publication of *"Introducción a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística"*, and finally many posts published on this blog since its creation in the summer of 2011

Another very important thing to say is that independently of the nature of a matrix, if it is global or specific, the way in which, in the second stage of replication, the Artificial Research by Deduction is going to find stochastic relations, is the same for all matrix, global or specific, for any kind of study, in a single synthetic science, synthetic academic field, or in synthetic interdisciplinary or multidisciplinary studies, or any other activity. All of them, taking any matrix as a database of its application, the first stage, on the second stage of replication, will use the same statistical and probabilistic methods without any difference.

There is no reason to duplicate on this blog all my previous work in correlational and probabilistic studies. Most of them are public in some way or another. I will give general ideas about how to find stochastic relations across any matrix, global or specific, that must be criticised rationally. Some of these general ideas about the identification of stochastic relations across any matrix, global or specific, are general ideas easily found in posts written on this blog from the summer of 2011 to 2017.

These general ideas are about the difference between correlation and probable causality, and the very nature of probability, including the [Second Method](#) of Impossible Probability.

Finally, the last stage in any Artificial Intelligence is the stage of auto-replication. If in Artificial Research by Application, one of the most important auto-replications, among many others, is the permanent auto-replication of the database, including new categories based on the measurements of new real objects, in Artificial Research by Deduction the only difference is the fact that the discovery of new possible stochastic relations is not going to affect the distribution of the list of factors in the matrix, but what is going to produce is the generation of new virtual models based on these new discoveries, and the modification of the previous comprehensive virtual model which includes all the rational hypothesis accepted for the Specific Artificial Intelligence, producing an auto-replication in the sense that, from the old one, is going to be necessary the creation of a new comprehensive virtual model every time that a new possible stochastic relation is accepted as a rational hypothesis.

In the case of the Global Artificial Intelligence, whose final virtual model is a global virtual model, the permanent discovery of new possible stochastic relations within the matrix will produce the permanent auto-replication of the global virtual model by the introduction of those new possible stochastic relations, which as empirical hypothesis were accepted as rational hypothesis.

Nevertheless, even if the final goal of the Artificial Research by Deduction in the Global Artificial Intelligence is the creation of a global virtual model, it is also convenient the creation of virtual models for every single stochastic relation.

In fact, in Artificial Research by Deduction is possible the creation of two possible models from the empirical hypothesis accepted as a rational hypothesis.

In Specific Artificial Intelligence, or Global Artificial Intelligence, the creation of single virtual models for every stochastic relation whose empirical hypothesis has been accepted as a rational hypothesis.

In Specific Artificial Intelligence, or Global Artificial Intelligence, the creation of comprehensive virtual models integrates absolutely all the empirical hypotheses accepted as rational hypotheses for this intelligence.

So, every Specific Artificial Intelligence for Artificial Research by Deduction can have, in addition to many single virtual models developed, a comprehensive virtual model where every single virtual model should be integrated. The comprehensive virtual model in a Specific Artificial Intelligence for Artificial Research by Deduction must include all the rational hypotheses accepted for this intelligence.

In Global Artificial Intelligence, in addition to every single virtual model developed, a comprehensive model is required where every single model should be integrated. This comprehensive virtual model will be the global virtual model integrating all rational hypotheses accepted for the Global Artificial Intelligence.

The main difference between the comprehensive virtual model in a Specific Artificial Intelligence for Artificial Research by Deduction, and the comprehensive virtual model made by Artificial Research by Deduction in Global Artificial Intelligence, is the fact that the comprehensive virtual model in the Global Artificial intelligence is going to be a global virtual model able to integrate every single possible stochastic relation found among any set of factors in the global matrix.

At the end, at any time that a new possible stochastic relation, correlational or probabilistic, is found on any matrix, specific or global, the formation of every new single virtual model will produce the permanent auto-replication of the previous comprehensive model, permanently modified by the introduction of every new single virtual model, from every rational hypothesis accepted from every new possible stochastic relation.

Another possibility is the permanent auto-replication of much more than one single virtual model and much more than only one comprehensive virtual model, even much more than only one global virtual model by possible variations in other kinds of models: prediction models, forecast models, and projective models. But these kinds of models should be made by other applications that I will develop in future posts.

For now, when we are creating the base for the theory on Specific and Global Artificial Intelligence under the theory of Impossible Probability, the most important thing is to set up strong definitions for future developments.

The race for the construction of the Global Artificial Intelligence is only starting, this is only the beginning, and in a future much closer than we think, further developments in this field are going to make possible what for now, and for many, is impossible, a Global Artificial Intelligence able to manage, not only a global economy, or a global security system, or a global surveillance system. Much more than this, a Global Artificial Intelligence able to achieve mathematical and logical discoveries [beyond human understanding](#), the creation of a new science, technology, and the creation of a new civilisation.

This process is longer, and right now, we are in the very first steps. For now, what is important is good definitions of every single stage and every single step. Being aware that, through Impossible Probability, I only give my point of view from statistics and probability, but further developments along with other contributions from many other mathematical and logic studies, are going to come true what for many is only a fairy tale.

Ruben García Pedraza, London 13th of February of 2018

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